

## ASSIGNMENT 2

Textbook Assignment: "Advanced Base Functional Components (ABFC)" (continued), chapter 2, pages 2-1 to 2-37.

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### QUESTIONS 2-1 THROUGH 2-4 REFER TO THE PORTABLE BATH UNIT.

- 2-1. After performing all before operation PMCS, you are preparing the unit for use. Of the following steps, which one is NOT correct?
1. Open the blower shutter approximately halfway
  2. Ensure the water heater drain cock is closed
  3. Make sure the manual fuel valve is open
  4. Check all waterlines to ensure they are connected
- 2-2. After you have the unit on line, the fuel pressure gauge should indicate what amount of pressure?
1. 120 psi
  2. 110 psi
  3. 100 psi
  4. 90 psi
- 2-3. After start-up, the exhaust gases from the stack should be transparent and smokeless. What should be done when smoke is present?
1. Open the air band on the blower assembly slowly until the exhaust gases are transparent
  2. Adjust the electrodes and check for proper ignition
  3. Clean the burner firebox and stack
  4. Check the fuel lines for contaminated fuel

- 2-4. When there is a danger of freezing, you should perform which of the following procedures?

1. Open the drain cock to the heater
2. Open the drain cock on the water pump
3. Disconnect and drain all water hoses
4. All of the above

### IN ANSWERING QUESTIONS 2-5 THROUGH 2-10, REFER TO TABLE 2-1 IN THE TEXTBOOK.

- 2-5. A water pump fails to deliver water. To locate the problem, you should take what action?
1. Check the pump shaft seals for leaks
  2. Check the blower for an obstruction
  3. Ensure the solenoid valve activates
  4. Ensure the strainer cover is not too loose
- 2-6. A fuel pump is noisy. What is the most likely problem?
1. The pump rotation is reversed
  2. The fuel filter is clogged or dirty
  3. The fuel nozzle is defective
  4. The flame-safeguard control switch is inoperative

- 2-7. The fuel pressure gauge indicates the pressure is too high. You can determine the location of the problem by performing which of the following troubleshooting procedures?
1. Check the fuel pump for defects
  2. Ensure the fuel pump is primed
  3. Check the fuel nozzle for defects
  4. Ensure the fuel is not contaminated
- 2-8. The fuel pump fails to deliver fuel to the burner. What is the most likely cause?
1. The fuel contains water
  2. The low-water probe is defective
  3. The power source is providing low voltage
  4. The supply and return fuel hoses are reversed
- 2-9. The burner fails to ignite. You can determine the problem by performing which of the following troubleshooting procedures?
1. Check for water in the fuel
  2. Ensure the electrodes are adjusted properly
  3. Ensure the porcelain surrounding each electrode is not cracked
  4. Each of the above
- 2-10. The water pump fails to rotate. What is the problem?
1. The electric motor is inoperative
  2. The solenoid control valve is defective
  3. The water-flow control valve is damaged
  4. The low-water relay is defective
- 2-11. The Type 2 space heater can operate on 5 gallons of either gasoline or oil for how many hours?
1. 5 to 10
  2. 8 to 20
  3. 10 to 30
  4. 20 to 35
- 2-12. In a tent with a wooden floor, the space heater should be set up in a sandbox. You should construct the sandbox 4 inches high and no smaller than how many inches long and wide, respectively?
1. 36 by 24
  2. 38 by 26
  3. 40 by 28
  4. 42 by 30
- 2-13. You should invert the fuel can on a support no less than 1 foot or more than how many feet above the float valve?
1. 9
  2. 8
  3. 6
  4. 4
- 2-14. The stove should be placed with a sand barrier between the bottom of the stove and the insulation shield. The sand barrier should have a minimum depth of how many inches?
1. 3 1/2
  2. 3 3/4
  3. 4 1/2
  4. 4 3/4

2-15. Combustible materials should be no closer than how many feet from the heater in any direction?

1. 6
2. 5
3. 3
4. 4

2-16. You are assembling a Type I space heater. After the top of the space heater is placed on the adapter ring, you should take what step next?

1. Install the spark arrester
2. Assemble the air-conditioning smoke pipe
3. Assemble the grate
4. Place the adapter ring on the bottom of the heater

2-17. When using the immersion heater, you notice dark smoke coming out of the flue pipe. What adjustment should you make?

1. Reduce the amount of water in the container
2. Increase the fuel flow
3. Clean the flue pipe
4. Reduce the fuel flow

2-18. Eight quarts of mogas should fuel the field range for what length of time?

1. 10 hours
2. 8 hours
3. 6 hours
4. 4 hours

2-19. What should be the minimum distance between leaching cesspools?

1. 20 feet center-to-center apart
2. 20 feet out-to-out measurement of the walls
3. 40 feet intake-to-intake
4. 10 feet center-to-wall from the septic tank

2-20. The porous subsoil required for cesspools must have a minimum depth that ranges between

1. 10 to 12 feet
2. 8 to 10 feet
3. 6 to 8 feet
4. 4 to 6 feet

2-21. What combinations of (a) width and (b) length, in feet, is suitable for a 675-gallon septic tank with a depth of 5 feet? (1 cu ft equals 7.5 gal)

1. (a) 2.0 (b) 9.0
2. (a) 2.5 (b) 7.2
3. (a) 3.0 (b) 3.5
4. (a) 4.0 (b) 4.5

2-22. What percentage of the effluent from a septic tank is composed of suspended solids?

1. 10% to 20%
2. 20% to 30%
3. 30% to 40%
4. 40% to 60%

2-23. What type of pump should you use to clean a septic tank?

1. Diaphragm
2. Rotary
3. Centrifugal
4. Turbine

2-24. The leaching test indicates water penetrated the soil 1 inch in 5 minutes. A total of how many gallons of sewage per square foot per day can be fed to a tiled trench in this area?

1. 1.7
2. 2.4
3. 3.2
4. 4.0

2-25. In laying a tile system, you should use a 4-inch to 6-inch pipe with a 3/8-inch clear opening at each joint for which of the following reasons?

1. To permit better liquid flow
2. To permit settling without the pipe breaking
3. To allow for pipe expansion and contraction
4. To allow for more storage capacity of solids and space for solids to drain into the surrounding gravel

2-26. The bed for a tile field should have approximately how many inches of course gravel around and over the pipe?

1. 6
2. 15
3. 3
4. 18

2-27. In a trench 24 inches wide, what should be the distance, in inches, between laterals?

1. 24
2. 36
3. 48
4. 72

2-28. Normally, what is the maximum length of a lateral?

1. 100 feet
2. 75 feet
3. 50 feet
4. 25 feet

2-29. What action should you take to keep surface water out of a pit being used under an eight-seat field-type latrine?

1. Line the pit with plastic material
2. Place a layer of oil-soaked burlap in a 4-foot by 6-inch margin dug around the pit, then backfill it with oil-soaked earth
3. Build a 6-inch berm around the latrine
4. Dig an 18-inch ditch around the latrine leading the water away from it

2-30. What is the size of the urinal seepage pit for an eight-seat latrine?

1. 6 feet by 6 feet
2. 2 feet by 2 feet
3. 8 feet by 8 feet
4. 4 feet by 4 feet

2-31. As a minimum, grease must be removed from a galley grease trap at what intervals?

1. Weekly
2. Twice weekly
3. Daily
4. Twice daily

2-32. The skid-mounted laundry unit is comprised of what number of major components?

1. Five
2. Six
3. Seven
4. Eight

2-33. What is the drying capacity, in pounds per hour, of a skid-mounted laundry unit?

1. 90
2. 75
3. 50
4. 25

2-34. When starting up the unit, you should always place the unit as close to the

1. intended water and electrical source as possible
2. intended water source and discharge area as possible
3. intended electrical source as possible
4. intended water discharge area as possible

2-35. During start-up, you should open the air-relief valve after opening what other valve?

1. Blowdown
2. Washer supply
3. Water shutoff
4. Pump discharge

2-36. What amount of water should you use to wash three loads of clothes that took 1 hour for each load?

1. 350 gallons
2. 375 gallons
3. 400 gallons
4. 450 gallons

2-37. The moisture extractor cycle programmer can be set for a 5- to 8-minute cycle..

1. True
2. False

2-38. What is included in the water heater “drawer assembly”?

1. The insulators, nozzle adapter, fuel pump relay, electrodes, and electrode support
2. The nozzle adapter, electrode support, electrodes, flame sensor, and flame shield
3. The insulators, fuel pump relay, electrodes, electrode support, and flame sensor
4. The electrodes, insulators, nozzle adapter, electrode support, and flame sensor

2-39. An 18-gallon storage tank can be operated at what maximum working pressure?

1. 80 psi
2. 85 psi
3. 95 psi
4. 100 psi

2-40. When starting up or operating the laundry unit, you should always refer to what manufacturer’s manual?

1. Parts manual
2. Maintenance manual
3. Instruction manual
4. Troubleshooting manual

2-41. What three controls operate the dryer or tumbler air temperature and drying cycle?

1. Temperature-regulating thermostat, drying timer, and cool-down timer
2. Drying timer, cool-down timer, and speed control
3. Cool-down timer, temperature-regulating thermostat, and air pressure-temperature regulator
4. Temperature-regulating thermostat, drying timer, and speed control

2-42. What dryer cycle control can be set from 0 to a maximum of 60 minutes?

1. The barrel speed control
2. The temperature-regulating thermostat
3. The dryer timer
4. The cool-down timer

2-43. The moisture programmer controls the cycle of what major component of the laundry unit?

1. Water heater
2. Extractor
3. Dryer
4. Washer

2-44. The moisture programmer on the extractor can be set from 1 minute to 15 minutes.

1. True
2. False

2-45. Field water purification units employ a number of treatment processes. What treatment processes are normally used?

1. Filtration, sanitation, coagulation, and sedimentation
2. Coagulation, sedimentation, filtration, and disinfection
3. Disinfection, sedimentation, aeration, and coagulation
4. Sedimentation, disinfection, flocculation, and aeration

2-46. Refer to the three charts in table 2-2.

You are treating a water bladder with a capacity of 500 gallons of water with 69% granular calcium hypochloride (HTH). What amount of HTH, in ounces, is required to receive a 100 ppm FAC?

1. 10
2. 8
3. 6
4. 4

2-47. You should take a FAC reading approximately how many minutes after adding HTH?

1. 5
2. 10
3. 20
4. 30

2-48. Refer to table 2-3. What is the required chlorine residual in a public water system for the first 30 minutes?

1. 7.0
2. 2.0
3. 5.0
4. 4.0

2-49. The FAC level must be maintained above 50 ppm during superchlorination for what length of time to disinfect a water source?

1. 16 hours
2. 12 hours
3. 8 hours
4. 4 hours

2-50. The diatomite water purification unit can produce a maximum of how many gallons of water per day?

1. 20,000
2. 25,000
3. 30,000
4. 35,000

2-51. The 3000D water purification unit is composed of how many modules?

1. Five
2. Two
3. Three
4. Four

2-52. You are tasked to run the 3000D unit. It has been 3 days since the unit was used, and a cold start is required. The automatic decompression device should be placed in what position?

1. OPERATE
2. START
3. RUN
4. NEUTRAL

2-53. Backwashing of the filter must be performed when the pressure difference between the filter inlet and outlet exceeds what psi?

1. 10
2. 20
3. 30
4. 40

2-54. The reverse osmosis water purification unit treats fresh, brackish, and sea water. It can also be used to treat water with what type of contamination?

1. Sewage
2. Industrial waste
3. CBR agents
4. Hazardous gases

2-55. A pump forces water through what type of membrane in the ROWPU elements?

1. Semiporous
2. Porous
3. Permeable
4. Semipermeable

2-56. What type of solution should be added to water to induce coagulation in the ROWPU?

1. Citric acid
2. Soda ash
3. Chlorine
4. Polyelectrolyte

2-57. When a solution of sodium hexamethphosphate is added to the ROWPU, it prevents what condition from occurring in the filters?

1. Scaling
2. Algae
3. Pitting
4. Erosion

2-58. Diluted citric acid is used to clean the ROWPU elements. What effect does it have on the water the unit treats?

1. It raises the pH level and improves coagulation
2. It lowers the pH level and improves the salt rejection of the elements
3. It lowers the pH level and decreases the filtering ability for a short period of time
4. It raises the pH level and neutralizes the polyelectrolyte solution

2-59. To fill a 3,000-gallon bladder with potable water requires what amount of time?

1. 3.40 hours
2. 3.70 hours
3. 4.16 hours
4. 4.00 hours

2-60. The higher the temperature of the raw water entering the ROWPU, the

1. lower the amount of water lost through the blowdown
2. lower the amount of product water produced
3. higher the amount of water lost through the blowdown
4. higher the amount of product water produced

2-61. What type of Seabee unit requires eight Utilitiesmen to be qualified on the ROWPU?

1. UCT
2. PWC
3. NMCB
4. CBU